UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/774,461	02/10/2004	Farid Matta	10030542-1	9134

7590 06/07/2005

Ian Hardcastle
AGILENT TECHNOLOGIES, INC.
Legal Department, D:429
P.O. Box 7599
Loveland, CO 80537-0599

EXAMINER	
STEIN, JAMES D	

ART UNIT	PAPER NUMBER
2874	

DATE MAILED: 06/07/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/774,461	MATTA ET AL.	
	Examiner	Art Unit	
	James D. Stein	2874	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-24 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-8 and 12-24 is/are rejected.

7)☒ Claim(s) 9-11 is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on 10 February 2004 is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-5, 7-8, 12 and 20 are rejected under 35 U.S.C. 102(b) as being anticipated by [USPAT 6,450,702] to Komoriya et al., which discloses a related optical module with an optical element positioning device.

With regard to claims 1 and 20, referencing Figs. 7 and 8 of Komoriya et al. disclose an optical module, comprising:

an active optical component 50 (laser diode);

an optical fiber 56 arranged with respect to the active optical component 50 to be capable of propagating light along an optical path between the active optical component 50 and the optical fiber 56 (see entire document, col. 7 lines 12-);

a beam shaping optical component 54 (micro lens) located in the optical path between the optical fiber 56 and the active optical component 50 (Figs. 7,8 and col. 7 lines 16-23); and

a positioning device 52 for moving at least one of the beam shaping optical component 54 with respect to the optical fiber 56, the beam shaping optical component 54 with respect to the active optical component 50, and the active optical component 50 with respect to the optical fiber 56 (col. 7 lines 24-33). Furthermore, the method of making an optical module of claim 20 is inherent to this disclosure.

With regard to claims 2 and 3, in addition to the rejection of claim 1 previously discussed above, Komoriya teaches active optical element 50 to be a laser diode (see entire document, col. 7 line 17). Furthermore, Fig. 7 and 8 shows the laser element 50 emitting a beam from an edge. Therefore, the Examiner believes the device to be an edge-emitting laser, as claimed by applicant.

With regard to claim 4, in addition to the rejection of claim 1 previously discussed above, in an alternate embodiment of the invention, Komoriva teaches a the active optical component to be a light-receiving part 76 (col. 8 line 8). A light-receiving part is well-known in the art to be equivalent to a photodetector.

With regard to claims 5, in addition to claim 1, Komoriya teaches the beam shaping optical device 54 to be a micro-lens (see entire document, col. 7 line 22).

With regard to claims 7 and 8, in addition to claim 1, Figs. 7-9 show a frame 58 to which both optical fiber 56 and active optical component 50 are attached. Furthermore, the positioning device 52 is shown by Figs. 1A and B to further comprise a movable bridge 2, or stage as claimed by applicant. Also, the positioning device 52 is shown by fig. 7 to be located between the frame 56 and the beam shaping optical component 54 (col. 7 lines 13-33).

Additionally, fig. 9B shows an alternate embodiment where the micro-machined movable stage 70 is arranged to move optical fiber 72 instead of the lens 54 (col. 8 lines 13-25). In this case, the positioning device is inherently affixed between the frame 58 (substrate) and the optical fiber 72.

With regard to claim 12, in addition to the rejection of claim 1 previously discussed above, Komoriya teaches a locking means for holding the positioning device 52 in position (col. 7 lines 29-32).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claim 6 rejected under 35 U.S.C. 103(a) as being unpatentable over Komoriya as previously discussed above with regard to claims 7 and 8. Komoriya discloses the claimed invention except for the positioning device to comprise a micro-machined movable stage affixed between the frame 58 and the active optical component 50. In fact, fig. 7 shows the active component 50, the beam shaping component 54 and the optical fiber 56 to be mounted on stage 58. This claim merely specifies a rearrangement of the components as described above with regard to claims 7 and 8. It would have been obvious at the time of the invention to modify the device as taught by Komoriya such that the positioning device comprises a micro-machined movable stage affixed between the frame 58 and the active optical component 50 in order to achieve optical alignment through movement of the active optical component rather than the lens or fiber. It has been held that rearranging parts of an invention involves only routine skill in the art. In re Japikse, 86 USPQ 70.

JDL

Claims 13-17 and 19 and 21-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Komoriya as applied to claim 12 above, and further in view of [USPUB 20050111794] to Wang

et al., which discloses another related optical alignment device. Komoriya et al. disclose the claimed invention except for a positioning memory circuit operable to control the positioning device. Wang et al. disclose another optical alignment device with a feedback control module 66, which holds the lens in alignment while micro-heaters 54 and 56 are activated in order to solder the lens in place [¶0024]. Therefore, it would have been obvious at the time of the invention to modify the device as disclosed by Komoriya to include a position memory circuit, micro-heaters and solder in order to more accurately control the alignment procedure and hold the optical elements in alignment in a more permanent manner than that taught by Komoriya. With regard to claims 16 and 17, it is noted to applicant that solder as taught by Wang, is a type of adhesive as claimed by applicant. Furthermore, the methods of making an optical module of claims 21 and 24 are inherent to this disclosure.

Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Komoriya-Wang as applied to claim 16 above, and further in view of [USPAT 6,086,776] to Maynard, which discloses another related optical alignment device. Komoriya-Wang disclose the claimed invention except for the adhesive to be activated by exposure to UV radiation or RF radiation. In addition UV-curable or activated adhesives to be to be extremely well-known as an alternative to soldering, Maynard teaches that the optical element may be secured in proper alignment by a UV-curable adhesive instead of solder (col. 9 line 34). Therefore, it would have been obvious at the time of the invention to modify the device as taught disclosed above to include a UV-activated adhesive, in order to secure the optical element in proper alignment when the extreme temperatures required by soldering would cause damage to the device. Furthermore, the methods of making an optical module of claims 22 and 23 are inherent to this disclosure.

Allowable Subject Matter

Claims 9-11 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. None of the cited prior art discloses *both a first and second micro-machined movable stage* respectively affixed between:

1) the frame and active optical component, and the frame and the beam-shaping optical component;
2) the frame and the optical fiber, and the frame and the beam-shaping optical component; and,
3) the frame and active optical component, and the frame and the optical fiber.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: [USPAT 6,688,783] to Janosik et al., [USPUB 2005/0025430] to Bhagavatula et al., and [USPAT] 6,829,400] to Nakano et al, which disclose related optical alignment positioning devices.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to James D. Stein whose telephone number is (571) 272-2132. The examiner can normally be reached on M-F (8:00am-4:30pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rodney Bovernick can be reached on (571) 272-2344. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

James D. Stein

John D. Lee
Primary Examiner